Kathleen Hartnett White, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
Larry R. Soward, *Commissioner*
Glenn Shankle, *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

September 17, 2004

CERTIFIED MAIL
RETURNED RECEIPT REQUESTED

Mr. Dean Kunihiro
Senior Vice President
Licensing and Regulatory Affairs
Waste Control Specialists LLC
5430 LBJ Freeway, Suite 1700
Three Lincoln Centre
Dallas, Texas 75240

Re: Administrative Notice of Deficiency
Radioactive Material License, Andrews County
Proposed Low-Level Radioactive Waste License No. 4100
Regulated Entity Number: RN104392790
Customer Reference Number: CN600616890

Dear Mr. Kunihiro:

Our review of the application for licensing the Low-Level Radioactive Waste Disposal Facility indicates that the application is administratively incomplete with regard to TCEQ rules. In general, the test of administrative completeness is a determination whether there is sufficient information to allow a technical review (30TAC§336.807(d). If the administrative review results in a finding that the information presented is a statement of the applicant's belief or conclusion, unsubstantiated by reviewable data, the application does not meet the test of sufficient information and is administratively deficient.

The information that must be submitted to make the application administratively complete is listed as Attachment 1, "Administrative Deficiencies." Although we have attempted to identify all the pertinent sections/appendices associated with the listed deficiencies, it is the responsibility of the applicant to address all applicable areas related to noted deficiencies.

Re: Proposed Low-Level Radioactive Waste License No. 4100

During our administrative review, we also noted areas where additional information/clarification will be necessary to further the comparative merit review and technical review of the application. Although these areas are not part of our determination of administrative incompleteness, we are notifying the same to you in advance of subsequent reviews in order to expedite the overall review process. These areas are listed in Attachment 2, "Additional Information."

Difficulties were encountered with insertion of Revision 1 to the application that was sent August 13, 2004 concerning Volume 1, Section 2, Attachment C. Please see ANOD item for Section 2.1.1. Specifically, if the revised pages were inserted with repagination as advised by the applicant, all subsequent Section 2 attachment pages would have had to be renumbered. We suggest using an alpha-numeric revision method for additional pages, as discussed in Attachment 1, Section 2.1.1.

To aid the handling of future revisions we ask that separate instructions be provided for removal and insertion/replacement of pages as required. Having these instructions for removal and insertion in a table format, with removal/replacement instructions listed side-by-side, is a clear way to communicate the applicant's intention.

Please feel free to submit revisions as necessary to effect corrections or clarifications beyond the scope of noted deficiencies with your response.

Please submit an original response and five (5) copies of your application revisions, including the signature page of the application. You are also required to post the final administratively complete application in a publicly accessible location and to the website, including all amendments and or supplements to the application (§30TAC336.805(4)).

Failure to submit the requested information within thirty (30) days of the date of this letter, pursuant to (§30TAC336.807), will cause the application to be removed from our list of pending applications and the executive director shall return the incomplete application to the applicant.

If you have any questions regarding this matter, you may contact Mr. Wade M. Wheatley, P.E., Director, Waste Permits Division at (512) 239-6787 or by writing him at the TCEQ, Office of Permitting, Remediation & Registration, Waste Permits Division, Director's Office (MC-126), P.O. Box 13087, Austin, Texas 78711-3087.

Sincerely,

David L. Howell, P.E., Manager
Permits Administration Review Section (MC 161)
Registration, Review and Reporting Division

DLH/pm

Attachments

cc: Mr. Stephen L. Cook, P.E., Cook-Joyce Inc. - Austin

Attachment 1
Administrative Deficiencies

General Comment Regarding References: Please specify page numbers in all references cited in the application. Please provide copies of all private communications or other unpublished sources used as references.

Instructions, Item 12
All geoscience documents must be prepared by or under the supervision of a Texas licensed professional geoscientist (P.G.), in accordance with Section 8.01 of the Texas Geoscience Practice Act. Geoscience includes the science of the earth and its origin and history, the investigation of the earth's environment and its constituent soils, rocks, minerals, fossil fuels, solids, and fluids, and the study of the natural and introduced agents, forces, and processes that cause changes in and on the earth. All geoscience documents submitted in this application must bear the full name, signature, date, license number, and seal of the geoscientist under which the document was prepared. If more than one P.G.'s work is contained in a document, both seals are required on the document and the limits of their work clearly indicated. [22 TAC, Part 39, Chapter 851].

Comment: It appears that all geoscience documents were prepared by or under the supervision of a Texas licensed professional geoscientist (P.G.), however, some maps and other geoscience documents may not be sealed and signed in accordance with the Texas Geoscience Practice Act. Where applicable, please provide copies of revised geoscientific maps and figures which are properly sealed and signed.

Section 1.11
For applications for new licenses, license renewals, and major amendments a copy of the administratively complete application must be made available at a public place in the county where the facility is located or proposed to be located for review and copying by the public. Identify the public place in the county (e.g., public library, county court house, city hall) including the address, where the application will be located.

Comment: The viewing place provided, Andrews Chamber of Commerce, is privately owned. Please identify a public place in the county (e.g., public library, county court house, city hall) including the address, where the application will be located.

Section 1.13
If the applicant is a corporation or unincorporated association, [30 TAC §336.706(a)(1)(c)],

1.13.2 the names and addresses of its directors and principal officers.

Comment: Please provide the names of the Board of Directors for WCS. If the directors are the same as the corporate officers, then this should be stated explicitly.

Section 1.14
If the applicant proposes to contract the management of the construction and/or operation of the disposal facility to another person, the full name, address, and telephone number of the management contractor, the full name and address of each principal, partner, or director of the contractor, the state where it is organized, and the principal location where it does business. [30 TAC §336.706(a)(1)(D)].

Comment: Applicant indicated "NA" for this section. This response does not appear consistent with the response for Section 4.2. Please explain the discrepancy or why this section is not applicable.

Section 1.19
Submit as "Attachment B" a copy of the warranty deed or other conveyance showing that the right, title, and interest in the land, including mineral interests, on which the land disposal facility or facilities are proposed to be located is owned in fee by the applicant. If land, including mineral interests, is not owned in fee by the applicant, indicate how the requirements of §§336.710 and 336.734 will be addressed. [30 TAC §336.807(d)(9)] & [THSC §401.204].

Comment: The information presented in the warranty deed, mineral deed, and exemption application does not clearly and unambiguously indicate where the applicant actually owns the property. There is no plat plan or any other map supporting this information (§336.710(3)). Please clearly indicate where the applicant owns the surface and mineral ownership interests in relation to the proposed land disposal facilities.

Section 1.21.1
Institutional information in the application shall include: a certification by the State or federal government which will own the disposal site that the state or federal government is prepared to accept transfer of the license when the provisions of 30 TAC §336.721 (relating to Transfer of License to Custodial Agency) are met and will assume responsibility for custodial care after site closure and post-closure observation and maintenance [30 TAC §336.710(1)];

Comment: Regarding the Compact Waste Facility, if arrangements for ownership have not already been made, the application should include a letter to the state agency to request that arrangements be made to assume ownership of the land at license issuance. For the Federal Waste Facility, the application should include a letter to the Secretary of Energy requesting arrangements for assumption of ownership by the federal government. However, if the applicant is seeking an exemption from the requirements of 30 TAC §§ 336.710 and 336.734 relating to federal ownership, the application should so indicate, and refer to the exemption application.

Section 1.21.2
Institutional information in the application shall include: evidence that arrangements have been made for assumption of ownership in fee by the State or federal government before the commission issues a license where the proposed disposal site is on land not owned by the State or federal government [30 TAC §§336.710(2) and 336.734(a)];

Comment: Regarding the Compact Waste Facility, if arrangements for ownership have not already been made, the application should include a letter to the state agency to request that arrangements be made to assume ownership of the land at license issuance. For the Federal Waste Facility, the application should include a letter to the Secretary of Energy requesting arrangements for assumption of ownership by the federal government. However, if the applicant is seeking an exemption from the requirements of 30 TAC §§ 336.710 and 336.734 relating to federal ownership, the application should so indicate and refer to the exemption application.

Section 1.21.3
Institutional information in the application shall include: a description of the ownership of the land and fixtures that are part of the proposed disposal site. A plat plan describing the site and identifying ownership of the surface and subsurface estates must be included. Where portions of the site have been leased or will be leased to others, the terms of the lease agreement must be described [30 TAC §336.710(3)]

Comment: Applicant has not provided a description of ownership of the subsurface estates for the proposed disposal site within this section. Please provide a plat plan incorporating the information and survey coordinates presented in Attachment C (as revised), drawing C 0.4 in Appendix 3.0-2, and clearly indicating the ownership of all subsurface estates. See definition of "disposal site" at §336.702(7), "site" at §336.702(18), and "site boundary" at §336.2(124).

Section 1.22
Describe the activities conducted by the applicant which require a permit or license from a

regulatory authority. [30 TAC §305.45(a)(5)].

Comment: A comprehensive description of authorizations for activities must be provided by the applicant. This description should include information pertaining to all applicable licenses and permits. The description should include any authorizations to receive, store, possess, or process radioactive material at the proposed land disposal facilities. Also, if a RCRA permit is required to receive mixed waste at the proposed land disposal facilities, this should be described as well. Please provide information as to whether the applicant will conduct these activities under their existing RCRA permit or will an additional RCRA authorization be necessary for operation of the proposed land disposal facilities? Please provide additional detailed information on plans for permitting management of hazardous waste and mixed waste at a licensed land disposal facility, including descriptions of procedures for receipt, storage, and processing of this waste. See comment at **Section 1.21.3.**

Section 1.23
Provide the applicant's compliance history to demonstrate its regard for the regulatory process. [THSC 401.112(a)(5)]

Comment: The applicant's compliance history in Section 1.23 and in Appendix 11.10.2 makes no reference to activities licensed by Texas Department of Health (TDH) and the Railroad Commission of Texas (RCT), as applicable. See also requirements at 30 TAC §336.819(4) and Texas Health and Safety Code §401.243. Please provide copies of the TDH and RCT compliance histories, as applicable.

Section 1.24
Indicate (by listing the permit/license number(s) in the column below) all existing, pending, or interim status permits or licenses; permits-by-rule; state and/or federal permits or other approvals which pertain to pollution control or waste management conducted by your facility. [30 TAC §§305.45(a)(7), 336.708(a)(12)]

Comment: The list of WCS Authorizations does not show any authorizations from EPA. The applicant should discuss any existing authorizations from EPA, including any agreements to store Greater than Class C (GTCC) waste. Also, the list does not show any permits applied for with TDH regarding disposal of 11(e)2 byproduct material. Please provide a complete description of these authorized and/or pending activities. See comments at Section 1.21.3 and Section 1.22.

Section 2.1.1
Submit as "Attachment C" a legal description of each tract of land upon which the waste management operations referred to in this license application will occur or have occurred.

Although a legal description is required, a metes and bounds description is not necessary for urban sites with appropriate "lot" description(s).

Comment: The applicant has included descriptions in revised "Attachment C" of the two proposed land disposal facilities, but has not included descriptions of any other tracts of land upon which waste management operations will occur or have occurred. Please include a legal description of each tract of land where waste receipt, processing or storage has occurred or will occur. Also include a legal description of each tract of land where disposal of radioactive material, including exempted material, has previously occurred in accordance with §336.707(6). In addition to the location, please include the amounts, activities, and descriptions of these materials. See comment at Section 1.19. See also §305.54(c) and §305.45(a)(6)(E).

Comment: The page numbers of the revised pages for revised Attachment C submitted on August 20, 2004, conflict with the original pagination of the application; therefore, the revised pages should be re-paginated from page numbers 2-77, 2-78, 2-79, and 2-80, to 2-76A, 2-76B, 2-76C, and 2-76D, respectively, and re-submitted accordingly. In the future, for any revision throughout the application, please submit in a form that does not require repagination, and that includes the revision number and date of the revision.

Section 2.1.2
Submit as "Attachment D" a map illustrating the location of the proposed disposal unit(s) relative to established surveys.

Comment: Attachment D is not a survey map. Please provide a survey map with the required information. Also, use of term "site boundary" as shown on diagram is not consistent with the term "site boundary" as defined at §336.2(124). See also §336.807(d)(2) and §336.708(a)(3). See also the definition of "site" given at §336.702(18). Attachment D should accurately describe the proposed land disposal facilities and site. See also Texas Health and Safety Code §401.231.

Section 2.1.5.1
Submit as "Attachment F" a drawn-to-scale topographic map (or other map if a topographic map is unavailable) of the facility and area extending at least one mile beyond the facility boundaries. Maps must be prepared by a licensed professional engineer or a registered surveyor. Maps must be of material suitable for a permanent record, and be on sheets 8½ inches by 11 inches or folded to that size, and be on a scale of not less than one inch equals two thousand feet. The scale should be adequate to depict the approximate boundaries and areal size in acres of the facility; [30 TAC §305.45(a)(6)]

Comment: Use of term "site boundary" as shown on Attachment F, topographic map, is not consistent with the term "site boundary" as defined at §336.2(124). See also §336.807(d)(2) and §336.708(a)(3). See also the definition of "site" given at §336.702(18). Please provide a topographic map which accurately describes the proposed land disposal facilities and site. See also Texas Health and Safety Code §401.231. Also, there is no indication that the map was prepared by a licensed professional engineer or a registered surveyor, as required.

Section 2.1.6
Adjacent Landowners - [30 TAC §§305.45(a)(6)(D), 305.54(c)] Submit as "Attachment G" a map and a cross-referenced list of complete mailing addresses for all landowners of property adjacent to the facility. Also, submit a computer diskette or compact disk (CD) containing only the mailing list. The document should be formatted in WordPerfect® version 10 word processing software, or a 100% compatible format Please label the disk with the applicant's name, regulated entity number (RNXXXXXXXXX), customer number (CNXXXXXXXXX) and street address (physical address). In formatting the mailing list, type the applicant's name, regulated entity number and street address on the top line before typing the addresses. Names and addresses must be typed in the format indicated below. This format is required by the U.S. Postal Service for machine readability. *Each letter in the name and address must be capitalized, contain no punctuation, and the appropriate two-character abbreviation must be used for the state.*

Comment: Adjacent landowner list is included in Section 2.6.1, but not in "Attachment G" as specified in the license application. The applicant needs to provide the adjacent landowner list in Attachment G.

Comment: List of adjacent landowners is not in USPS format. Please provide a list in the correct format for mailing.

Comment: The applicant (WCS) is shown as an adjacent landowner on Attachment G. The applicant must provide a comprehensive list of landowners adjacent to the site boundary as that term is defined in 30 TAC §§336.2(124). See also §336.807(d)(2). Please provide a map which accurately describes adjacent landowners relative to the proposed land disposal facilities and site.

Section 2.2 Demography and Socioeconomics

General comment: Under state law THSC Subsection 401.236(2), the applicant "shall consider possible socioeconomic effects on communities in the host county." The socioeconomic report, or "social impact assessment," appraises the potential impacts of a proposed project on a specific community. In keeping with the generally accepted standards for social impact assessments:

(1) Please describe the current social and economic conditions in the area where the project will be implemented. See Secton 2.2.1.

(2) Please describe the effects on future developments in the area of the facility, including potential future economic development. See Section 2.2.1.

(3) Please describe in detail the expected social and economic impacts of the project on the local community. (as well as project alternatives). See Section 2.2.3.

(4) Please identify the community's current concerns regarding the project. It is important that the socioeconomic report anticipate all of the likely regions, people and interests that could be affected by the project. Given the power of public opinion, the demonstration of community support is one of the most important parts of the socioeconomic section. See Section 2.2.3.

Section 2.2.1
Describe and quantify area and site characteristics including historical and cultural landmarks, archaeology, demography, and current land uses. [30 TAC 336.708(a)(3), 336.708(a)(8)(B)].

Comment: Neither the information provided in this section, nor Appendix 2.2.1, includes key demographic variables, such as age, gender, income/class, employment levels, educational levels, and health. Please provide an assessment of the socioeconomic impact of the land disposal facilities that include these variables. Some of the variables (employment, income, education and health) that are missing in Section 2.2.1 are discussed in Section 2.2.3. However, even in Section 2.2.3, some key pieces of data are still unclear and/or missing.

Comment: The discussion in Section 2.2.1 on "the minority populations" of Lea County, NM and Andrews County, TX is confusing, and discrepancies exist in the data cited elsewhere. For instance, on p 2-10 the minority population of Andrews County is listed as 22.9%, but in Section 2.2.3, p. 2-13, it is listed as 43.2%. Please reconcile data inconsistency and clarify how the minority variable is defined. If the higher number is correct, please describe whether that level is "consistent with the ... respective state average ... of 29.0%" (p. 2-10).

Comment: Please provide a map showing the ethnic/racial distribution of the local population surrounding the site, and a map showing the distribution of income levels surrounding the site.

Comment: Disaggregated and historical data is necessary to determine the level of social stratification in the community, to assess what stakeholder groups might exist in the area, and to assess whether the views of elected officials and the public are generally in alignment in regards to the proposed facility.

Please provide the following demographic statistics:

(1) employment & unemployment statistics broken down by race/ethnicity, age and gender;

(2) employment statistics broken down by sector (number of people working in agriculture, construction, etc.);

(3) health statistics should be disaggregated by race/ethnicity and by income and include number of births, number of deaths, average life span, infant mortality rate, child mortality rate, morbidity and mortality by type of disease;

(4) housing statistics should be disaggregated (for example, how many families live in houses that cost $30,000 and less; $30,000-$40,000, etc.);

(5) housing statistics should indicate how many families rent vs. how many families own their homes;

(6) same as No. 4 by race;

(7) rental prices should be disaggregated (number of families paying $100 or less/month, number of families paying $100-$199, etc.);

(8) households by type;

(9) education statistics should describe levels of education attained by adult population;

(10) income statistics should be disaggregated;

(11) statistics on poverty should be included (number of persons living above and below poverty line; poverty by age; poverty by race; etc.).

Section 2.2.3
Describe and quantify socioeconomic effects on surrounding communities of operation of the licensed activity and of associated transportation of low-level radioactive waste. [THSC 401.112(a)(3)]

Comment: Table 2.2.3-1 is listed as a summary of projected effects on p. 2-12, but instead is a summary of future economic estimates and is not supported by data or analysis. Please provide data to support conclusions and reference the table in the appropriate part of the text.

Comment: On p. 2-19, the applicant states that officials from Andrews County have assessed "the

risks and benefits of WCS prior to supporting the previous expansions." Please provide information on what the community perceives to be the risks and benefits of the land disposal facilities. Also, please include the referenced resolutions of support from the Andrews City Council and Andrews Industrial Board of Directors, in addition to the resolution of the Andrews County Commission found as Attachment A of Section 1.

Comment: Please provide data/substantiation for the following declaration: ". . . acceptance of the project over the past ten years has cut across racial, ethnic, socioeconomic, and geographic lines. The unanimity of support has not just been an expression of sentiment from elected officials in the region of interest (ROI), but has come from a broad base of the local population. There are not, for example, any viable locally created opposition groups in Andrews."

Comment: Please provide data/substantiation for the following declaration on page 2-21: "the primary reason for widespread acceptance of the proposed project within the ROI is that the management philosophy is to conduct an open, timely and responsive dialogue with the representatives of state and local government as well as with local stakeholders." How does the applicant maintain this dialogue? What methods are used to establish this dialogue (i.e. public meetings, hotline, etc.)? How is the effectiveness of this dialogue evaluated?

Section 2.3.1
Describe and quantify area and site characteristics including air quality, meteorology, climatology, and natural hazards. [THSC §401.112(a)(1)] & [30 TAC §336.708(a)(3)]

Comment: Please include meteorological data in accordance with in NUREG-1200, SRP 6.1.5.2, Section 2.2(4). Also, please include information on the sources of the meteorological data collected and the representativeness of the data for the proposed site. What were the overall capture rates of the instruments, how many data records were recorded, and what were the instruments' poorest performance in a single month? Please provide specifications on the meteorological data measurements recorded on- and off-site, and state the limitations and accuracy of the input data. [NUREG-1200, SRP 6.1.5.2, Sections 2.2(2) & 2.2(3)]. It would also be helpful to include graphs indicating the diurnal variation of the average hourly precipitation during the period recorded (2000-2003) and for each season that was recorded on-site.

Comment: Please provide seasonal frequencies along with the annual frequencies of severe weather phenomena, including tornados, thunderstorms, flash flooding, lightning, and hail. [NUREG-1200, SRP 2.2, Section 2.1(2)]

Comment: Please add average and extreme duration precipitation events to the average and extreme intensity precipitation events for each month during the period recorded (2000-2003). Please summarize and graph information on the routine weather-related site deterioration parameters, such as solar radiation, air pressure, and pressure and temperature gradients. Please summarize and graph

information on extreme weather-related site deterioration parameters. [NUREG-1200, SRP 2.2, Sections 2.2(1)(b), 2.2(1)(c), & 2.2(1)(d)]

Comment: Please provide atmospheric transport models for estimating ground level concentrations and deposition rates. [NUREG-1200, SRP 6.1.5.2, Section 2.1]

Section 2.3.2
Demonstrate that the site is not located in a county in which the average annual rainfall is greater than 20 inches. [THSC §401.217(2)] & [30 TAC §336.728(n)]

Comment: Please supply the data used to determine average annual precipitation for the on-site annual averages as well as data from the four cities mentioned (Andrews, Midland, Jal, and Hobbs).

Section 2.4.1
Describe and quantify area and site characteristics, including surface hydrology. [THSC §401.233(b)] & [30 TAC §336.708(a)(3)]

Comment: Please show the limits of the five-mile radius on the National Wetlands Inventory Map in Appendix 2.4.2. and provide additional maps to encompass the five-mile radius, if necessary. Also, delineate the boundaries of the land disposal facilities and site on all maps.

Comment: Elevations of land contours on Figures II.F.1, II.F.2, and II.F.4 are illegible. Please provide legible maps. Also, please include with these maps the boundaries of the land disposal facilities and site.

Comment: Although the drainage features referred to in Section 2.4.1 of Volume 1 of the Application might be intermittent water bodies, they should be included in any description and scientific analysis of surface hydrology.

Comment: Please include hydrograph information and other supporting evidence used for the floodplain study.

Comment: Please re-label page 1-1 of Appendix 2.4.1 to identify that the document supports the current license application.

Section 2.4.2
Demonstrate that the disposal site is generally well drained and free of areas of flooding or frequent ponding. Waste disposal shall not take place in a 100-year flood plain, coastal high-hazard area, or wetland, as defined in Executive Order 11988, "Floodplain Management Guidelines." [THSC §401.217(4)]& [30 TAC §336.728(d)]

Comment: Please add 500-year and Probable Maximum Precipitation (PMP) storm events to the floodplain study in Appendix 2.4.1. [NUREG-1200, SRP 3.4.4, Section 4.3.2.]

Section 2.4.3
Demonstrate that upstream drainage areas are minimized to decrease the amount of runoff which could erode or inundate disposal units. [30 TAC §336.728(e)]

Comment: Please show the "54-acre" area draining to the disposal units as stated in Section 3.4.1 in Appendix 3.0-1 and quantify its run-off.

Section 2.4.5
Demonstrate that the site is not located less than 20 miles upstream of or up-drainage from the maximum elevation of the surface of a reservoir project that [30 TAC §336.728(p)]:

(1) has been constructed or is under construction by the United States Bureau of Reclamation or the United States Army Corps of Engineers; or

(2) has been approved for construction by the Texas Water Development Board as part of the state water plan under the Texas Water Code, Subchapter C, Chapter 16.

Comment: Because the proposed site is located within 20 miles of the state border and because the site drains to New Mexico and Texas, please provide a letter from the Texas Water Development Board and the United States Bureau of Reclamation and the United States Army Corps of Engineers or other form of demonstration that no reservoir has been or is under construction within a 20-mile upstream radius of the site.

Section 2.5.1
Describe and quantify area and site characteristics including geology, seismology and topography. [THSC §401.112(a)(1)] & [30 TAC §336.708(a)(3)]

Comment: Please revise all relevant aerial-view geoscientific maps to include the outlines of the federal facility waste and compact waste disposal facilities. For example, Figures 6.5-1 and 6.5-1A in Volume 3. Similarly, please revise all relevant geoscientific cross sections to illustrate the projected outlines of the final disposal unit geometries.

Comment: Please provide an index map for the resistivity profiles in Figure 2 of the second seismic survey, in Volume 4, Appendix 6.5-4.

Comment: Please include outlines of the federal facility waste and compact waste disposal facilities on

aerial photographs in Volume 4, Appendix 6.5-5.

Comment: Please fully explain the status of onsite abandoned, but unplugged wells.

Section 2.5.2
Demonstrate that the disposal site avoids tectonic processes such as faulting, folding, seismic activity, or vulcanism that occur with such frequency and extent as to significantly affect the ability of the disposal site to meet the performance objectives of 30 TAC §336.723, or may preclude defensible modeling and prediction of long-term impacts. [30 TAC §336.728(i)]

Comment: Please describe the deformation (anticline and related folding), including age, seen in Figures 6.4-10 and 6.4-11, particularly as it relates to groundwater infiltration and structural stability at the proposed land disposal facilities.

Section 2.6.1
Describe and quantify area and site characteristics including geotechnical features, geochemistry, soils, and natural radiation background. [30 TAC §336.708(a)(3)]

Comment: The description of the surface and subsurface above the OAG is unclear, even conflicting in places. Please define and describe specifically, and in detail, what is meant when using the following terms: Blackwater Draw Formation, soil, topsoil, and overburden. The applicant's response to Sections 2.6.1 and 2.6.2 is not clear in terms of lateral and vertical extents of these zones at the site, particularly as they relate stratigraphically to one another, and to the underlying OAG. It would be helpful to include representations of these stratigraphic relationships (for example, stratigraphic charts) for various points at the site.

Section 2.6.2
Demonstrate that the disposal site will not be located in areas where soil conditions are such that spill cleanup would be impracticable. [30 TAC §336.728(l)]

Comment: Please provide detailed supporting data to demonstrate that the proposed site is not located in an area where soil conditions are such that spill cleanup would be impracticable. In reference to the first comment in Section 2.6.1, please first define the term "soil" when responding to this comment.

Section 2.7.1
Describe and quantify area and site characteristics including ground water hydrology. [THSC §401.233(b)] & [30 TAC §336.708(a)(3)]

Comment: Please describe how anisotropy and heterogeneity affect estimates of hydraulic parameter values in the saturated and unsaturated zone, for example hydraulic conductivity and the coefficient of dispersion.

Section 2.8.2
Demonstrate that the selected disposal site avoids areas that have known natural resources which, if exploited, would result in failure to meet the performance objectives of 30 TAC §336.723. [30 TAC §336.728(c)]

Comment: Please explain why there's not likely to be future mining of sand and gravel onsite as had been conducted previously.

Section 2.10.1
Describe and quantify area and site characteristics, including natural radiation background. [THSC §401.233(b)] & [30 TAC §336.708(a)(3)]

Comment: Please provide a copy of the Radiological Environmental Monitoring Plan (REMP), associated sampling and analysis procedures, and all environmental reports generated in accordance with the REMP plan since the program's inception. Please note that the natural background radiation study and baseline environmental monitoring program will be considered as part of the site's pre-operational monitoring program. The REMP must be site specific and include the post-operational, construction, operation, closure, and post-closure periods. To ensure adequacy of the REMP and associated procedures, the applicant is referred to guidance documents DOE/LLW-13Tg, *Low Level Waste Management Handbook Series - Environmental Monitoring for Low Level Waste Disposal Sites*, and NUREG/CR-5054, *Recommendation to the NRC for Review Criteria for Alternative Methods of Low-Level Radioactive Waste Disposal - Environmental Monitoring and Surveillance Programs.*

Comment: Please refer to comments for **Section 6.2.1** which deals with environmental monitoring of non-radiological characteristics.

Section 2.10.2
Describe the baseline environmental monitoring program, including radioactive and chemical characteristics. [THSC §§401.112(a)(6), (11) & (17), 401.233(b)] & [30 TAC §336.708(a)(10)]

Comment: Please refer to comment for **Section 2.10.1**.

Section 2.10.3

Describe a pre-operational monitoring program to provide basic environmental data on the disposal site's characteristics. For those characteristics that are subject to seasonal variation, data must cover at least a 12-month period. [30 TAC §336.731(a)]

Comment: Please refer to comment for **Section 2.10.1**.

Comment: Please provide a description of an ecological monitoring plan that includes the continuation or periodic update of the baseline ecological assessment (described in Appendices 2.9.1 and 11.1.1). Without this comparison to the baseline ecological characteristics, it is not possible to evaluate impacts and trends to population abundance, distribution, productivity, and health of ecological communities from construction, operation, and closure activities of the land disposal facilities.

Comment: Please provide sampling and analysis of media, vegetation, and mammals for chemical constituents in addition to the radionuclide constituents as presented. Also, the vegetation and mammal sampling and analyses appear to be only for purposes of evaluating indirect and direct radiological impacts to human health via the food chain and does not address the impacts to these ecological receptors themselves.

Section 3.1.3
Describe the facilities and systems used for or in connection with the collection, transportation, treatment, and disposal of waste. [THSC §401.112(a)(7)] & [30 TAC §305.45(a)(8)(A)]

Comment: With respect to storage, please describe systems and facilities that will be used in the event of a scheduling conflict, or an emergency situation (such as a weather event) to accommodate unforseen waste back up. With respect to treatment, describe systems and facilities that will be used to process or repackage waste in the event of a waste package dropped or damaged onsite, and waste that has arrived in leaking condition that must be over packed for transportation. [30 TAC §336.707(5)]

Section 3.1.5
Describe the plans for use of the land disposal facility for purposes other than disposal of waste. [30 TAC §336.706(a)(3)]

Comment: Additional information is needed by the TCEQ regarding plans for treatment and storage of waste. With respect to storage, please describe plans to accommodate a scheduling conflict, or an emergency situation (such as a weather event). With respect to treatment, describe plans to accommodate waste that must be processed or repackaged because of a waste package dropped or damaged onsite, and waste that has arrived in leaking condition that must be over packed for transportation. [30 TAC §336.707(5)]

Section 3.2
Describe the codes and standards which the applicant has applied to the design. [30 TAC §336.707(3)]

Comment: Provide specific codes and standards that are used in the design instead of general classes of codes (such as IBC 2003), or organization names (such as ASTM).

Section 3.3
Provide accurate drawings and descriptions of on-site buildings including, but not limited to, construction, foundation details, instrumentation, ventilation, plumbing and fire suppression systems, and types of intruder barriers; onsite traffic systems; physical security system; survey control program; areas of waste storage. [30 TAC §§336.707(5), 305.54(f)]

Comment: Accurate drawings and descriptions of onsite buildings must be provided including, but not limited to: foundation details, ventilation, plumbing, fire suppression, and instrumentation details. [30 TAC §336.707(5)]. Conceptual drawings are not sufficient to satisfy the requirements of this section. Drawings provided must contain information sufficient to conduct relevant analysis. For example, the design description of a foundation must be sufficient to conduct structural analysis, and make an assessment of long-term stability. In addition, water conveyance systems must be described using numerical engineering descriptions that demonstrate how water conveyance structures (such as berms or channels) were sized, how material properties were selected, the management of water velocity, and the impact of erosion on long-term stability. [30 TAC §336.707(5)]

Comment: Please provide plans showing the construction and design of the extension to water and wastewater lines for the onsite facilities. Demonstrate adequacy of the system due to these additions and provide permits from the county to engage in septic and water line extension activities. [NUREG-1200; SRP 3.4.1 Section 4.3.3]

Comment: Please demonstrate how the "sump and sloped pad are designed to contain all incident precipitation from a 100-year storm event," as stated in Section 3.3.3 of Appendix 3.0-1 in Volume 8 of the Application. This applies to the decontamination pad in Section 3.3.4.

Section 3.4
Describe the design features of the land disposal facility and the disposal units. For near-surface disposal, the description shall include those design features related to structural stability of backfill and wastes. [30 TAC §§336.707(4), 305.54(f)]

Comment: The structural stability analysis provided in the application must be amplified to include numerical engineering analyses. Structural analysis must be provided for all foundations, trenches, berms, drainage channels, liners, covers, structures, canisters, slabs, cast in place concrete, geotextiles,

and geomembranes including: a numerical estimate and diagram of all stresses acting on a member, a listing of all design variables and specifications (such as materials properties), a numerical description of the design capacity of the member to withstand stress, calculation of factor of safety using design capacity and total stress on the member, and uncertainty bounds on the factor of safety. Durability of structures must also be described using numerical engineering descriptions including discussions of: corrosion, degradation, erosion, mass wasting. The following physical phenomena must also be described using numerical engineering descriptions: static and dynamic settlement, subsidence, stability of slopes, liquefaction potential (e.g., drainage layers). Specify with certainty whether a cast in place cover or precast canister covers will be used in the design of the CWF. [30 TAC §§336.707(4) and 336.709(4)]

Section 3.5.1
Describe the design features of the land disposal facility and the disposal units. For near-surface disposal, the description shall include those design features related to integrity and structural stability of covers for disposal units. [30 TAC §§336.707(4) 336.709(4), 305.54(f)].

Comment: The application states on page 3-27 that the long-term integrity of the cover depends on underlying stability of the waste array, and that cover failure mechanisms related to differential settlement are avoided. Provide numerical analyses to estimate settlement in the waste array and cover, and that the integrity of the cover is maintained. In addition, the application comments that the reserve clay fill will be available to re-form and self-heal in the event of localized settlement. Provide numerical analyses to estimate localized settlement, and demonstrate that the material properties of the clay are sufficient to self heal across the predicted settlement. Last, the application comments that the cannister and grout create a waste array that is structurally stable. Provide a numerical engineering description of all stresses to the waste array, a description of the design capacity of the waste array, estimate the factor of safety for the stresses and design capacity, and present uncertainty bounds on the factor of safety.

Section 3.5.2
Demonstrate that the covers are designed to minimize water infiltration, to direct percolating or surface water away from the disposed waste, and to resist degradation by surface geologic processes and biotic activity. [30 TAC §336.729(d)]

Comment: Section 3.4.1 of Appendix 3.0-1 in Volume 8 refers to the wrong drawing. Please correct.

Comment: It is unclear how restoration of the original grade, following disposal, will necessarily minimize water infiltration and direct surface water away from the disposed waste. Please provide a demonstration.

Comment: Please demonstrate that the final cover materials can withstand water velocities produced by the 100-year and PMP storm events without erosion as stated in Section 3.4.1 of Appendix 3.0-1 in Volume 8.

Section 3.6.1
Describe those design features related to infiltration of water, contact of wastes with standing water, and disposal site drainage. [30 TAC §§336.707(4), 305.54(f)]

Comment: Please quantify infiltration and water contact during construction, operation, and closure of the land disposal facilities. Also, clearly describe assumptions used, verification of results, and calibration methods used in infiltration modeling. [30 TAC §336.729(d)] [NUREG-1200, SRP 6.1.2, Section 2.1(1)] It would also be helpful to summarize the infiltration results in tabular form from the HELP computer model

Comment: Please describe the drainage plan for the disposal site. Quantify amount of runoff produced for 100-year, 500-year, and PMP storm events. Describe the how storm water runoff will be retained and managed. How will sedimentation be addressed?

Comment: Please correct the section heading numbers for Section 3.5.5 (CWF Liner System).

Comment: Please provide calculations used to size the 500,000-gallon storage tanks envisioned for the storage of storm water leachate for the Compact Waste and Federal Facility Waste Disposal Facilities as described in Section 3.4.2 of Volume 8.

Comment: Please submit specifications of the leak-detection pumps discussed in Section 3.5.4 and 3.5.5. Provide design curves for the pumps, and drawings showing the details and instrumentation of the pumps. Also, please provide calculations used to determine capacity flow of the pump.

Section 3.6.2
Demonstrate that the disposal site is designed to minimize the contact of water with waste during storage, the contact of standing water with waste during disposal, and the contact of percolating or standing water with wastes after disposal. [30 TAC §336.729(f)]

Comment: Please describe the interim cover mentioned in Section 3.6.2 in Volume 1 of the Application and include plans and drawings to illustrate the minimization of contact of water with waste during this interim condition. Also, show the calculations used to determine the volume of the storm events depicted in Section 3.6.2.

Section 3.6.3
Indicate proximity to creeks or culverts, types of intruder barriers, onsite drainage systems, and methods to control surface water and groundwater access to the wastes. [30 TAC §§336.707(5), 305.54(f)]

Comment: Demonstrate that the capacity of the primary and secondary trapezoidal diversion channel is adequate to contain the 500-yr and PMP storm event, as stated in Volume 8 of the Application, Appendix 3.0-1, Section 2.1. Please indicate grading, width, and depth of the channels in plan and profile view. These views should show the channel slope, side slopes, material properties, depths of flow, and velocities within the channel. A demonstration should also be made indicating that the channel is graded to drain.

Section 3.6.4
Demonstrate that surface features direct surface water drainage away from disposal units at velocities and gradients which will not result in erosion that will require ongoing active maintenance. [30 TAC §336.729(e)]

Comment: Please demonstrate with supporting calculations that adequate resistance to erosion is being designed into the facility.

Section 3.7.1
Describe the design basis natural events or phenomena and their relationship to the principal design criteria. [30 TAC §336.707(2)]

Comment: Please use a Probable Maximum Precipitation (PMP) storm event for all design features in Criteria W1. [NUREG-1200, SRP 3.2, Section 4.3.1 and NUREG-1200, SRP 3.4.4, Section 4.3.2]

Section 4.1
Describe the codes and standards which will apply to construction of the land disposal facilities. [30 TAC §336.707(3)]

Comment: Provide specific codes and standards that are used in the construction of the land disposal facilities instead of general classes of codes (such as IBC 2003), or organization names (such as ASTM).

Section 4.2
Describe construction of the disposal facility, including construction methods of the disposal

units. [30 TAC §§336.707(5), 305.54(f)]

Comment: Installation of the final cover system is not mentioned. Please describe the construction and installation of the final cover system.

Comment: The RCRA-prescribed liner is mentioned briefly on page 4-5 for the FWF. Please describe the construction and installation of the RCRA liner.

Comment: The CWF liner system is mentioned briefly. Please describe the construction and installation of the liner system for the CWF.

Comment: Construction and installation of the side walls of the CWF and FWF are not mentioned. Please describe installation of the side walls of the CWF and FWF. Regarding each of the above-mentioned elements – final cover, RCRA liner, CWF liner and sidewalls – describe specific installation techniques for each layer (such as moisture addition and compaction), and specify test methods to ensure successful installation. For man-made materials such as membrane liners and geotextiles, describe installation with specific attention to handling, seaming, seam testing, damage control, and repair.

Comment: Installation of the cast-in-place concrete layer in the CWF is not mentioned. Describe the construction and installation of the cast-in-place concrete layer with specific attention to testing the properties of the concrete and the installation of the reinforcing steel.

Comment: Traffic access corridors are mentioned briefly. Describe the location, construction, and maintenance of traffic access corridors during the construction of the facility. Provide maps to show where the traffic access corridors will be placed, and how they will change over time.

Comment: Management of water is mentioned briefly. Describe the design, installation, and maintenance of temporary surface water control systems, with specific attention to how temporary systems will dovetail with permanent systems. Designate where borrow areas will be placed using a site map.

Comment: On page 4-5, the applicant states that the cells of both facilities will likely be constructed by an independent construction company. If the applicant proposes to contract the construction of the land disposal facilities to separate entities, the full name, address and telephone number of the management contractor, the full name and address of each principal, partner, or director of the contractors, the state where each is organized and the principle location where each does business must be provided [30 TAC §336.706(a)(1)(D)].

Section 4.3.3
Describe construction of the disposal facility, including construction methods of the disposal

units. [30 TAC §§336.707(5), 305.54(f)] Describe: storage, maintenance, replacement, and inspection of equipment.

Comment: Demonstrate that reasonable equipment for storage, maintenance, replacement, and inspection facilities, including backup equipment, are available to support safe construction operations. Ensure that construction activities will not be interrupted and that unsafe conditions will not be permitted to develop because of the breakdown or scarcity of important and required equipment. [NUREG-1200, SRP 3.3.2]

Section 4.4

Provide plans for the operation of a monitoring program during the land disposal facility site construction. Measurements and observations shall be made and recorded to provide data to evaluate the potential health and environmental impacts during the construction of the facility and to enable the evaluation of long-term effects and the need for mitigative measures. The monitoring system shall be capable of providing early warning of releases of radionuclides and chemical constituents before they leave the disposal site boundary. [30 TAC §336.731(b)]

Comment: Please provide a detailed description of an early-warning monitoring system for all appropriate media and pathways.

Comment: See the comments for **Section 2.10.3.**

Section 5.1

Describe the types, chemical and physical forms, quantities, classification, and specifications of the radioactive material proposed to be received, possessed, processed, and disposed of at the land disposal facility. The description shall include any prior disposal containing radioactive material at the site. The description shall include performance criteria for form and packaging of the waste or radioactive material that has been previously received and will be received. [THSC §401.112(a)(8)] & [30 TAC §§336.707(6), 305.45(a)(8)(B)(ii)]

Comment: The applicant directs the reader to Section 8.2 for its response to Section 5.1. Tables 8.2-5 and 8.2-6 describe waste receipt for a time period of 35 years. However, in Section 8.0 of the application, the applicant assumes the Federal Waste Facility will operate for 70 years. Please modify Table 8.2-6 and other relevant sections to provide the additional 35 years of forecasts for federal waste as described in Section 8. Please include quantities, activities, and radionuclides for 11(e)(2) waste, NORM waste, containerized waste, and the previously disposed radioactive waste in the RCRA facility, including performance criteria for form and packaging. Further, please provide the types, chemical and physical forms, quantities, classifications, and specifications of the radioactive material proposed to be processed and disposed of at the land disposal facility.

Section 5.5.1

Provide an Operating and Emergency Procedures Manual that provides detailed procedures for receiving, handling, storing, processing, and disposal of waste. Emergency procedures shall include a spill detection and cleanup program for the site and associated transportation of waste. [THSC §§401.112(a) (12), 401.112(a)(16)] & [30 TAC §336.707(9)]

Comment: The applicant did not provide an Operating and Emergency Procedures Manual as required by 30 TAC §336.707(9). Please provide detailed implementing procedures dealing with operation and emergencies. Examples of procedures that meet the intent of 30 TAC §336.707(9) are provided in NUREG-1199, "Standard Format and Content of a License Application for a Low-level Radioactive Waste Disposal Facility," Section 8.4, Emergency Planning, and Section 8.6, Facility Administrative and Operating Procedures.

Section 5.5.2

Provide a description of the radiation safety program for control and monitoring of contamination to personnel, vehicles, equipment, buildings, and the disposal site. Both routine operations and accidents shall be addressed. The program description shall include procedures, instrumentation, facilities, and equipment. [30 TAC §336.707(8)]

Comment: Please describe specific procedures, instrumentation, facilities, and equipment that will be used in support of the radiation safety program. Please identify specific portable and laboratory technical equipment and instrumentation, respiratory protective equipment, protective clothing, and the criteria for the selection of equipment, instrumentation, and facilities in the description. In addition, please describe equipment and design features used for ensuring that occupational radiation exposures will be ALARA. It is suggested that to be inclusive of items required by 30 TAC §336.707(8), the applicant include the information provided under guidance document NUREG-1199, "Standard Format and Content of a License Application for a Low-level Radioactive Waste Disposal Facility," Section 7.0, Occupational Radiation Protection.

Section 5.5.3

Provide a description of the administrative procedures that the applicant must apply to control activities at the land disposal facility, including hours of proposed operation. [30 TAC §336.707(10)]

Comment: Please submit detailed implementing procedures to meet this requirement. Examples of procedures that meet the intent of 30 TAC §336.707(10) are provided in NUREG-1199, "Standard Format and Content of a License Application for a Low-level Radioactive Waste Disposal Facility," Section 8.6, Facility Administrative and Operating Procedures.

Section 5.6.1

Provide a plan to comply with the requirements of 30 TAC Chapter 335 (relating to Industrial Solid Waste and Municipal Hazardous Waste) for the disposal of mixed waste. The licensee may not dispose of mixed waste unless the licensee is specifically licensed for the disposal of mixed waste under 30 TAC Chapter 336 and permitted under 30 TAC Chapter 335. [30 TAC §336.733(c)]

Comment: For the FWF, please describe how the requirements of 30 TAC Chapter 355 relate with requirements of 30 TAC Chapter 336: land disposal facility siting criteria, land disposal facility management, wastes and waste analysis, engineering reports, geology report, closure and post-closure plans, and financial assurance.

Section 5.6.2
Provide plan to comply with the following requirements: All low-level radioactive waste and mixed waste received for disposal by the applicant shall be classified in accordance with 30 TAC §336.362(a), shall meet the applicable characteristics of 30 TAC §336.362(b) , and shall be labeled in accordance with 30 TAC §336.362(c)). [30 TAC §336.733(a)]

Comment: Please provide the plan that will be used to classify mixed waste in accordance with 30 TAC §336.362(a), and how the applicable characteristics of 30 TAC §336.362(b) will be met. In addition, please provide the procedure that will be used to label waste in accordance with 30 TAC §336.362(c).

Section 5.7.2
Provide a description of the operational monitoring programs, including radioactive and chemical characteristics; and plan for taking corrective measures if migration of radionuclides or chemical constituents is indicated. Monitoring data shall be sufficient to evaluate the potential health and environmental impacts during the operation of the facility and to enable the evaluation of long-term effects and the need for mitigative measures. Demonstrate the capability of the monitoring system to provide early warning of releases of radionuclides and chemical constituents before they leave the disposal site boundary. [30 TAC §336.708(a)(10) & [30 TAC §336.731(b)]

Comment: Please provide a detailed description of an early-warning monitoring system for all appropriate media and pathways.

Comment: See the comment to **Section 2.10.3.**

Section 5.8.2
Applicants seeking authorization for disposal of federal facility wastes shall submit a written agreement, acceptable to the executive director and signed by the United States secretary of energy, stating that the federal government will assume all right, title, and interest in land and buildings acquired under 30 TAC §336.710 (relating to Institutional Information) for the disposal of federal facility waste, together with requisite rights of access to the land and buildings; [30 TAC§336.909(2)]

Comment: The application must include a certification by the federal government demonstrating that there will be assumption of ownership in fee of the land at license issuance and responsibility for custodial care. To satisfy the administrative review of the application, the application should include a request to the U. S. Secretary of Energy that the agency assume ownership of the land and perform custodial care. However, if the applicant is seeking an exemption from the ownership requirement for the Federal Waste Facility, the application should indicate that the applicant requests an exemption from the requirements of 30 TAC §§ 336.710 and 336.734 relating to federal ownership and refer to the exemption application.

Section 5.8.4
Applicants seeking authorization for disposal of federal facility wastes shall submit detailed plans regarding the transfer of federal facility waste, land, and buildings to the federal government without cost to the state or federal government, other than the administrative and legal costs incurred in making the transfer;

Comment: Please provide detailed plans for transfer of ownership (timing of transactions, methods of conveyance, etc.) even if the applicant is proposing to actually transfer the property some time after license issuance. The application must include a certification by the federal government demonstrating that there will be assumption of ownership in fee of the land at license issuance and responsibility for custodial care. To satisfy the administrative review of the application, the application should include a request to the U. S. Secretary of Energy that the agency assume ownership of the land and perform custodial care. However, if the applicant is seeking an exemption from a rule requirement, the application should indicate that the applicant requests an exemption from the specific rule requirement and refer to the exemption application.

Section 5.8.5
Applicants seeking authorization for disposal of federal facility wastes shall submit a signed statement which indemnifies the state, and its officers and agents, for any liability imposed on the state under state or federal law for damages, removal, or remedial action with respect to the land, the facility, or the waste accepted, stored, or disposed of, because the transfer does not relieve a license holder of liability for any act or omission before or following the transfer. This indemnification does not relieve the license holder of providing financial assurance for

decommissioning, institutional control, and, after decommissioning, corrective action. [30 TAC §336.909(5)]

Comment: The applicant indicated that the indemnification statement would be provided at some future time. Please provide an indemnification statement in accordance with §336.909(5).

Section 6.2.1
The applicant shall provide a description of baseline, operational, and long-term environmental monitoring programs, including radioactive and chemical characteristics, and the plan for taking corrective measures if migration of radionuclides or chemical constituents is indicated. [30 TAC §336.708(a)(10)]

Comment: A plan for taking corrective measures in the event migration of radionuclides or chemical constituents is indicated, was not provided in the application as required by 30 TAC §336.708(a)(10). It is noted that Section 7.3 and Appendix 11.1.1, Environmental Report, Section 8.3.4 provides a discussion of the components that would go into the development of such a corrective action plan. Please provide specific plans, keyed off of the environmental monitoring program, that include corrective measures to address both radiological and chemical constituents.

Comment: If hazardous chemical wastes are anticipated to be received in the federal facility, then provide an environmental monitoring program and implementing procedures that establish a baseline for appropriate chemicals and which allows for monitoring of chemical wastes over the operational, closure, and post-closure periods. Please also provide plans concerning corrective measures to address migration of radionuclides or chemical constituents, for appropriate media and pathways during the operational, closure, and post-closure periods.

Comment: Please refer to comment for **Section 2.10.3**.

Section 6.2.2
The applicant shall provide a post-operational surveillance monitoring program based on the operating history and the closure and stabilization of the disposal site. The monitoring system shall be capable of providing early warning of releases of radionuclides and chemical constituents before they leave the disposal site boundary. [30 TAC §336.731(c)]

Comment: Please refer to comment for **Section 4.4**.

Section 6.2.3
The licensee shall have a plan for taking corrective measures if migration of radionuclides and chemical constituents would indicate that the performance objectives of 30 TAC §336.723

may not be met. [30 TAC §336.731(d)]

Comment: Please refer to comment for Section **6.2.1**.

Section 7.2.1
The applicant shall provide a description of the long-term environmental monitoring programs, including radioactive and chemical characteristics, and plan for taking corrective measures if migration of radionuclides or chemical constituents is indicated [H&SC §401.112(a)(6), (11) & (17)] & [30 TAC §336.708(a)(10)]

Comment: Please refer to comment for Section **6.2.1**.

Section 7.3.2
The applicant shall provide a plan for taking corrective measures if migration of radionuclides and chemical constituents would indicate that the performance objectives of 30 TAC §336.723 may not be met.

Comment: In accordance with 30 TAC §336.731(d), please submit a specific plan for taking corrective measures if migration of radionuclides and chemical constituents would indicate that the performance objectives of 30 TAC §336.723 may not be met. The plan should address, at a minimum, the scope and schedule for determining and taking corrective measures.

Section 8.1.2
The applicant must demonstrate that the disposal site shall not be located where nearby facilities or activities could adversely impact the ability of the site to meet the performance objectives of 30 TAC §336.723 or significantly mask the environmental monitoring program. If activities involving radioactive material were previously performed on the site, evaluate the contribution of those activities that may impact the ability of the site to meet performance objectives. [30 TAC §336.728(k)]

Comment: In accordance with 30 TAC §336.728(k), please provide a listing of all nearby facilities, businesses, and activities including ongoing storage, processing, and disposal that could potentially have an impact on the site either during operations or after closure. Also, provide the types, quantities, and activities of previously disposed and future disposals (i.e., byproduct material) of radioactive material that could impact the ability of the site to meet the performance objectives. Previously disposed material may have been exempted but may contribute to the overall dose and should be included in the source term.

Section 8.2.1
Describe the types, chemical and physical forms, quantities, classification, and specifications of the radioactive material proposed to be received, possessed, processed, and disposed of at the land disposal facility. Provide sufficient information about the wastes projected to be disposed of at the disposal site to allow for defendable modeling of potential radiological impacts associated with waste disposal. This description shall include any prior disposal containing radioactive material at the site. This description shall include performance criteria for form and packaging of the waste or radioactive material that has been previously received and will be received. [30 TAC §§336.707(6), 305.45(a)(8)(B)(ii)] & [THSC §401.112(a)(8)]

Comment: Please refer to the comment for **Section 5.1**.

Section 8.2.2
The following information on waste characteristics should be provided: (7) A presentation and discussion of any limitations that will be imposed on waste receipt, form, packaging, or other characteristics that would influence assessments of disposal facility performance. Such limitations could potentially include limitations on total site inventories of radionuclides of concern (e.g., C-14, H-3, Tc-99, or I-129), or requirements on the structural stability of certain Class A wastes. These proposed limitations will be incorporated into the land disposal facility license as conditions of operation.

Comment: In addition to meeting the requirements of 30 TAC §336.362, Appendix E, please provide a discussion and plan for waste acceptance including special requirements for waste receipt, waste form, packaging, and limitations, including inventory limits, placed on specific radionuclides that exhibit certain characteristics such as being highly mobile in the environment, volatile, very high external dose rates, or having very long half-lives. Also, discuss procedures on possession and security of special nuclear material.

Section 8.2.3
Describe the waste anticipated to be generated during closure operations. The information should be sufficient to enable an independent staff assessment of potential closure costs and impacts. The waste description should thus provide information similar to that discussed in item 8.2.2(4).

Comment: Please provide a description of the types, quantities, and activities of wastes that will be generated during decommissioning of the disposal site. The description should include verifiable cost estimates for closure and impacts that may result from closure. Also, provide information on the disposition of the waste generated during decommissioning.

Section 8.3.1
Demonstrate that operations at the land disposal facility shall be conducted in compliance with the standards for radiation protection set out in 30 TAC 336 Subchapter D (relating to Standards for Protection Against Radiation), except for releases of radioactivity in effluents from the land disposal facility, which shall be governed by 30 TAC §336.724 (relating to Protection of the General Population from Releases of Radioactivity). Effort shall be made to maintain radiation exposures as low as is reasonably achievable. [30 TAC §336.726]

Provide analyses of the protection of individuals during operations including assessments of expected exposures due to routine operations and likely accidents during handling, processing, storage, and disposal of waste. The analyses shall provide reasonable assurance that exposures will be controlled to meet the requirements of 30 TAC Chapter 336 Subchapter D (relating to Standards for Protection Against Radiation). [30 TAC §§336.709(3), 336.726]

Comment: Please provide the implementing procedures in support of the land disposal facilities' Radiation Safety Program, Appendix 5.5.2-1. Also, Appendix 8.0-4, Worker Doses, states that detailed procedures will need to be developed to safely handle Class B/C waste and the Containerized Class A wastes. Please provide procedures for handling such wastes that will provide reasonable assurance that exposures will be controlled to meet the requirements of 30 TAC Chapter 336, Subchapter D.

Section 8.4
Provide information on how the disposal facility will be sited, designed, used, operated, and closed to achieve long-term stability of the disposal site and to eliminate the need for ongoing active maintenance of the disposal site following closure so that only surveillance, monitoring, or minor custodial care are required. [30 TAC §336.727]

Analyses of the long-term stability of the disposal site and the need for ongoing active maintenance after closure shall be based upon analyses of active natural processes such as erosion, mass wasting, slope failure, settlement of wastes and backfill, infiltration through covers over disposal units and adjacent soils, and surface drainage of the disposal site. The analyses shall provide reasonable assurance that there will not be a need for ongoing active maintenance of the disposal site following closure. [30 TAC §336.709(4)]

Comment: Please provide analyses, using numerical engineering studies of active natural processes such as erosion, mass wasting, slope failure, and settlement. Evaluate long-term infiltration performance of the cover system during and after institutional control. Also, estimate infiltration of adjacent soils. Please provide detailed description/analyses of surface drainage, including assessment of long-term drainage performance. These analyses should support an assessment of long-term site stability.

Section 9.0
Provide a detailed description of the quality assurance program, tailored to disposal of low-level radioactive waste, developed and applied by the applicant for the determination of natural disposal site characteristics and for quality assurance during the design, construction, operation, and closure of the land disposal facility and during the receipt, handling, and emplacement of waste. [30 TAC §336.707(7)].

Comment: Please provide a comprehensive QA/QC plan and implementing procedures which describe or demonstrate how the items listed under each of the subheadings in Section 9.0 will be met.

Section 10.3
Provide a description of minimum training and experience requirements of personnel filling on-site management and key operating positions [30 TAC §336.706(a)(2)(B)]

Comment: Please clarify how many personnel will be employed during operation of the proposed land disposal facilities. Volume 1, page 2-17 cites 16 full and part-time employees, but Volume 1, Section 11, page 11-40 cites a staff of 40 employees.

Comment: Please describe each key operating staff position, including minimum qualifications, training and experience, as required by 30 TAC §336.706(a)(2)(B).

Comment: Please provide the plan to maintain an adequate complement of trained personnel for radiation protection, administration, operation, maintenance, quality assurance and quality control for all employees involved in daily operation of the land disposal facilities. [30 TAC §336.706(a)(2)(D)]

Comment: Please provide the organizational structure showing all management and key operating staff. [30 TAC §336.706(a)(2)(A)]

Section 10.4
Provide a description of the applicant's personnel training program [30 TAC §336.706(a)(2)(C)].

Comment: Please describe the training program for key operating staff as required by 30 TAC §336.706(a)(2)(C).

Section 11.9
Provide a description of baseline, operational, and long-term environmental monitoring programs, including radioactive and chemical characteristics, and the plan for taking corrective measures if migration of radionuclides or chemical constituents is indicated. [30

TAC §336.708(a)(10)]

Comment: The monitoring program description does not include chemical characteristics in soil. All chemical data provided is for groundwater only. Although it is acknowledged that the primary pathway for chemical constituent migration is via leachate to groundwater, without establishing nonradiological background and baseline soil data, it is not possible to identify any site-related elevations of chemical concentrations in soil that may warrant concern. Please provide chemical characteristics in soil.

Section 11.9.1
A pre-operational monitoring program shall be conducted to provide basic environmental data on the disposal site characteristics. For those characteristics that are subject to seasonal variation, data must cover at least a 12-month period. The report shall address the following topics: [30 TAC §336.731(a)]

(1) Meteorological Baselines

(2) Hydrology and Water Quality

(3) Terrestrial Environment

(4) Radiological Baselines

Comment: Please refer to comment for **Section 2.10.3**.

Section 11.9.2
During the land disposal facility site construction and operation, the licensee shall maintain a monitoring program. Measurements and observations shall be made and recorded to provide data to evaluate the potential health and environmental impacts during both the construction and the operation of the facility and to enable the evaluation of long-term effects and the need for mitigative measures. The monitoring system shall be capable of providing early warning of releases of radionuclides and chemical constituents before they leave the disposal site boundary. The applicant's report shall address the following topics: [30 TAC §336.731(b)]

(1) Meteorological Monitoring System

(2) Hydrological Monitoring System

(3) Ecological Monitoring System

(4) Radiological Monitoring System

Comment: Please refer to comments for **Sections 2.10.3 and 6.2.1**.

Comment: As indicated in (3) above, flora and fauna data should already be part of the ongoing monitoring program. The wording in the application states that ecological monitoring will be included and periodically updated but does not mention specifics regarding the sampling and analyses that will be covered in this monitoring or the proposed periodicity. The ecological monitoring should address the floral and faunal communities themselves - not just how they impact human health via the food chain.

Section 11.9.3
Provide a post-operational surveillance monitoring program based on the operating history and the closure and stabilization of the disposal site. The monitoring system shall be capable of providing early warning of releases of radionuclides and chemical constituents before they leave the disposal site boundary. [30 TAC §336.731(c)]

Comment: Please refer to comment for **Section 4.4.**

Section 11.10
Provide a list of all permits, licenses, approvals, and other entitlements required by Federal, State, local, and regional authorities that must be obtained for protection of the environment, and discuss the status and history of compliance with these requirements. The discussion of alternatives in the report should include a discussion of whether the alternatives will comply with such applicable environmental quality standards and requirements.

Comment: The applicant's compliance history in Section 1.23 and in Appendix 11.10.2 makes no reference to activities licensed by TDH. A copy of the TDH compliance history should be provided by the applicant. Also, Table 11.10-1 does not show authorization from the EPA to possess/store Greater than Class C (GTCC) waste. See also comments for Sections 1.23 and 1.24. Further, there is no discussion as to whether alternatives in the report will comply with applicable environmental quality standards and requirements. Please provide this discussion.

Section 12.1
The financial information in the application shall be sufficient to demonstrate that the financial qualifications of the applicant are adequate to carry out the activities for which the license is sought. [THSC §401.108], [30 TAC §§336.735, and 305.50(a)(4)(D)(i-vii)]

Comment: Information to demonstrate the financial qualifications of applicant was not provided. Please address the requirements of these statutes and rules, and provide the information requested in rule 30 TAC §305.50(a)(4)(D)(i-vii).

Section 12.1.1
Costs of construction, pre-construction and conducting all licensed activities over the planned operating life of the project, including costs of disposal 30 TAC §336.735

Comment: Please provide detailed estimates for each phase. In addition, detailed pro-forma statements will be needed to assess operating costs and funding sources.

Comment: The application indicates that a combination of debt and equity financing will be used to fund costs. Although a company identified as Andrews County Holdings, Inc. is expected to provide certain debt financing, there is no information to provide any indication of a commitment from Andrews County Holdings, Inc. to provide funds. Nor is there information that demonstrates Andrews County Holdings, Inc.'s ability to provide these funds. Please provide information supporting the claim that funds will be available for the above-mentioned phases.

Comment: Please provide pro-forma statements that include cost estimates and quotes from mechanism issuers for providing the required financial assurance mechanisms.

Comment: Clarify whether the operating life of the FWF will be 35 or 70 years.

Section 12.1.2
Paying annual license fees and any agency costs of processing the application that may exceed the $500,000 application processing fee (30 TAC §336.735).

Comment: The applicant estimates licensing fees and agency costs of processing the application at $5,000,000, including the initial $500,000 application processing fee. Please provide proof that the applicant already has these funds on hand. Note that a demonstration of the ability to obtain these funds, as is allowed for other preconstruction costs, does not meet the burden.

Section 12.1.3
Provide sufficient insurance to cover potential injury to any property or person, including potential injury from risks relating to transportation (30 TAC §336.736(e)).

Comment: Please clarify whether liability policies cited in support of the LLRW application are the same policies used to demonstrate financial obligations for the applicant's existing RCRA permit. If so, the existing coverage amounts would not meet the requirements for the subject application since 30 TAC §37.9059(g) requires coverage distinct from any other liability requirements under Chapter 37. Providing additional insurance coverage beyond that already in place must be accounted for in the pro-forma cost assumptions.

Comment: Please assume a worst-case scenario, rather than "normal circumstances" as cited in

Volume 1, page 12-6, in determining sufficient liability coverage.

Comment: Please justify the assumption that the 14,000-acre boundary of the applicant's property meaningfully limits potential third-party liability.

Section 12.1.4
Providing cost estimates and/or proposed third-party liability coverage limits as well as information intended to support the cost estimate and/or liability limits for...: 30 TAC §§336.735 and 336.736.

Comment: Please provide the information used for the following cost estimates and/or liability limits: post-closure costs, institutional controls, and corrective action. The cost estimates should be separate and apart from that provided by the Texas Department of Health.

Comment: Clarify whether the operating life of the FWF will be 35 or 70 years.

Section 12.2
The applicant described how the proposed third party liability coverage amounts to be obtained by the applicant is sufficient to cover potential injury to any property or person, including potential injury from risks relating to transportation 30 TAC §336.736(e).

Comment: Please refer to the comment for **Section 12.1.3**

Section 12.4
The applicant has provided the information used to calculate the estimated costs for each of the items in 12.1.1-12.1.4 30 TAC §§336.735 and 336.736.

Comment: Please provide the data and calculations used for the following cost estimates: pre-construction costs, operational costs, post-closure costs, institutional controls, and corrective action.

Section 12.5
The applicant has provided the financial information described in 30 TAC §305.50(a)(4)(D)(ii)-(vii) to demonstrate the financial capacity to satisfy the requirements of 12.1.

Comment: Please provide the financial information described in 30 TAC §305.50(a)(4)(D)(ii)-(vii).

Section 14.3
Schedule for Operations (Receipt, Processing and Disposal of Waste)

Comment: Please revise the Operations Schedule to show anticipated 70-year operating life of federal facility waste disposal facility as discussed in other sections of the application.

Attachment 2
Additional Information

Section 2.4.1
Describe and quantify area and site characteristics, including surface hydrology. [THSC §401.233(b)] & [30 TAC §336.708(a)(3)]

Comment: Please make a distinction between the Monument Draw in Texas and the Monument Draw in New Mexico and clarify which is being discussed in the floodplain report.

Section 2.5.2
Demonstrate that the disposal site avoids tectonic processes such as faulting, folding, seismic activity, or vulcanism that occur with such frequency and extent as to significantly affect the ability of the disposal site to meet the performance objectives of 30 TAC §336.723, or may preclude defensible modeling and prediction of long-term impacts. [30 TAC §336.728(I)]

Comment: Please provide additional evidence, besides apparent cross-cutting relationships, to demonstrate and substantiate the assertion that site-related faulting and folding ended prior to Cretaceous deposition.

Section 2.7.1
Describe and quantify area and site characteristics including ground water hydrology. [THSC §401.233(b)] & [30 TAC §336.708(a)(3)]

Comment: Please demonstrate in detail the appropriateness of using the hydrogeologic properties of the Yucca Mountain Paintbrush and Calico Hills Formations as input parameter values for the proposed disposal site's sands and clays for the purpose of groundwater modeling.

Section 2.9.1 and Appendix 2.9.1
Describe and quantify area and site characteristics including ecology [THSC § 401.233(b)] & [30 TAC §336.708(a)(3)]

Comment: With the exception of the bird counts, the 1997 ecological assessment of flora and fauna at the site was conducted within one mile of the core area. Please extend this baseline inventory of flora and fauna to a three-mile radius of the core area to better ensure that all species and habitats that could potentially become impacted from site activities are identified. Alternatively, expert testimony should be

provided that states that no other habitats and species beyond what was identified in the 1997 assessment or the 2004 update are expected to occur within the additional two miles.

Comment: It is preferred that the applicant obtain written documentation or some other form of personal communication with personnel from the Texas Parks and Wildlife Department and/or the U.S. Fish and Wildlife Service regarding the likelihood of threatened/endangered species occurring near the site, rather than relying on these agencies' web sites and observations made in the field.

Comment: The definition of the term "important species" appearing in Section 3.0 of Appendix 2.9.1 and Section 2.2.3 of Appendix 11.1.1 should be expanded to include species that affect the well-being of some other important species or species that serve as biological indicators of radionuclides or chemical contaminants. The applicant is referred to NRC Regulatory Guide 4.18 for further information.

Appendix 2.9.1, Section 4.0

Comment: It is understood that a Habitat Equivalency Analysis (HEA) will be developed to quantify ecological habitats in need of restoration/mitigation and that this model is primarily used in response to a "release" of contaminants, which in this case, has not occurred. However, please provide additional information regarding the HEA: Who will be conducting the HEA? Will a discounted service-acre-year be the unit of measure? Will the Natural Resource Trustee agencies in Texas be involved? This comment also applies to other parts of the application where the corrective measures portion of the environmental monitoring program is described (e.g., **Section 7.2.1 and Section 8.0 of Appendix 11.1.1**)

Section 4.3.1
Describe construction of the disposal facility, including construction methods of the disposal units. [30 TAC §§336.707(5), 305.54(f)] Describe: types of equipment;

Comment: Describe equipment that will be used to construct the cast-in-place concrete layer in the CWF.

Section 5.5.4
Provide the facility's security plans. [THSC §401.112(a)(14)]

Comment: Please provide detailed plans for implementing security measures relating to the layout of the land disposal facilities and other design features and equipment arrangements intended to provide protection of nuclear materials against theft, tampering, or radiological sabotage. Examples of

information that meet the intent of THSC §401.112(a)(14) are provided in NUREG-1199, "Standard Format and Content of a License Application for a Low-level Radioactive Waste Disposal Facility," Section 8.7, Physical Security.

Section 5.7.1
Provide a description of the facility electronic record keeping system as required in 30 TAC §336.740(i) (relating to Maintenance of Records and Reports). [30 TAC §336.707(11)]

Comment: Please provide procedures and a copy of the proposed electronic record keeping system database(s) so that the commission may ensure that the requirements of 30 TAC §336.740(i) have been met.

Appendix 11.1.1: Sections 2.2, 3.1.5, and 5.1.1.1

Comment: See the comments to **Section 2.9.1 and Appendix 2.9.1**

Section 11.4.2
Describe area and site characteristics including ecology, geology (including geotechnical features), seismology, geochemistry, soils, topography, hydrology, air quality, natural radiation background, meteorology, climatology, historical and cultural landmarks, archaeology, demography, and current land uses. The applicant's report shall address the following topics: [30 TAC §336.708(a)(3)]

Comment: See the comment to Section 2.9.1 and Appendix 2.9.1